

REMARKS

Claims 1, 3, 5-20, and 22-106 are pending, with claims 1, 22, 28, 40, 45, 50, 94 and 95 being independent. Claims 28-54 have been withdrawn from consideration. Claims 105 and 106 have been added. Support for these dependent claims is found in the application at, for example, p. 9, ll. 17-28. In view of the foregoing amendments and the following remarks, reconsideration and allowance of this application are requested.

35 U.S.C. § 103(a) Kester / Suzuki Rejection

Claims 95-96 and 103-104 were rejected as allegedly being obvious over Kester (U.S. Patent No. 6,008,975) in view of Suzuki (U.S. Patent No. 3,913,127). This rejection is respectfully traversed.

Independent claim 95 is directed to an electrical apparatus that includes a bonded disk stack having a rating of at least 6 kV in which adjacent MOV disks have face-to-face bonds with each other. A reinforcing structure that includes a resin composition system of discontinuous fibers randomly dispersed in an epoxy is attached to an outer surface of the bonded disk stack and enables the disk stack to withstand at least one 100 kA impulse without breaking the face-to-face bonds.

Applicant requests reconsideration and withdrawal of the rejection of claim 95 because one of ordinary skill in the art would not have had a motivation to combine Kester and Suzuki in the manner suggested by the Examiner.

Kester describes a surge arrester subassembly that includes electrical components stacked in an axial array and an insulative coating disposed over the outer surface of the axial array. See Kester at col. 3, ll. 18-21. In the "present invention" of Kester, "the coating has a coefficient of thermal expansion that is greater than the coefficient of thermal expansion of the electrical components . . . so that when the coated array is cooled below the cure temperature, the coating will tend to shrink more than then electrical components, thereby exerting compressive forces on the array." See Kester at col. 3, ll. 26-33. The surge arrester subassembly of Kester is described with reference to a high-current (e.g., 10 kA) device, see Kester at col. 4, ll. 14-18, for

protecting electrical equipment from high-current surges, e.g., due to lightning strikes, see Kester at col. 1, ll. 17-29.

In contrast, Suzuki discloses an “invention [that] relates to a . . . high-voltage, small-current-capacity semiconductor device used for a high voltage power circuit of an electron microscope, an X-ray apparatus, or a TV receiver.” See Suzuki at col. 1, ll. 8-11. Suzuki discloses semiconductor pellets with a PN or PIN junction that are laminated together and that are covered with a glass layer. See Suzuki at col. 3, ll. 9-14 and ll. 48-52. A glass layer, rather than an epoxy layer is used to cover the pellets because, according to Suzuki, epoxy resin “has the disadvantage that the increased sectional area of the epoxy resin causes strain” and because “[e]poxy resin generally has a coefficient of thermal expansion higher than a semiconductor pellet by one order, and the semiconductor pellet develops a tensile stress at high temperatures due to the difference in the coefficient of thermal expansion, to which the semiconductor pellet easily succumbs.” See Suzuki at col. 1, ll. 43-56. Suzuki discloses that “[t]his problem of tensile stress is solved by the use of a first insulating layer of glass” See Suzuki at col. 1, ll. 57-58. Thus, the difference in the coefficients of thermal expansion between the epoxy coating and the electrical components, which Kester exploits as an advantageous aspect of the invention, for Suzuki is a disadvantage that is overcome by using a construction different from the one recited in claim 95.

Therefore, Kester and Suzuki each teach away from the combination of the two references and there would have been no motivation to combine the two. For at least this reason applicants request reconsideration and withdrawal of the rejection of claim 95. Claims 96, 103, and 104 depend from claim 95 and are allowable for at least the same reasons.

35 U.S.C. § 103(a) Kester / Donnola / Suzuki Rejection

Claims 22-27, 66-93, and 99-100 were rejected as being unpatentable over Kester in view of Donnola (U.S. Patent No. 6,185,813) and Suzuki. Applicant requests withdrawal of the rejection of independent claim 22 because there would have been no motivation to combine Suzuki with either Kester or Donnola in the manner suggested by the Examiner.

As explained above, there is no motivation to combine Suzuki with Kester. Furthermore, there is no motivation to combine Suzuki with Donnola. Like Kester, Donnola relates to high-

current (e.g., several tens of kA) lightning arrester, see Donnola at col. 1, ll. 4-27, and, like Kester, Donnola discloses covering the electrical components of the arrester in an epoxy resin, see Donnola at col. 5, ll. 43-48. Thus, Suzuki teaches away from the combination with Donnola for the same reasons that it teaches away from the combination with Kester. For at least this reason, applicants request reconsideration and withdrawal of the rejection of claim 22. Claims 23-27, 66-93, and 99-100 depend from claim 22 and are allowable for at least the same reasons.

35 U.S.C. § 103(a) Kester / Donnola / Schmidt Rejection

Claims 1, 3, 5-20 and 55-65 and 97-98 were rejected as being unpatentable over Kester in view of Donnola and Schmidt (U.S. Patent No. 5,602,710). This rejection is respectfully traversed.

Independent claim 1 is directed to an electrical apparatus that includes a monolithic MOV disk having a rating of at least 6 kV and a reinforcing structure “constructed so as to enable the monolithic MOV disk to withstand at least one 100 kA impulse without cracking.” Applicant requests reconsideration and withdrawal of this rejection because neither Kester, Donnola, Schmidt, nor any combination of the three describes or suggests a monolithic MOV disk having a rating of at least 6 kV and a reinforcing structure that would enable such a monolithic MOV disk to withstand a 100 kA impulse without cracking.

Kester describes the example of a 10 kV distribution class surge arrester that includes three MOV disks. In view of the arrester's 10 kV rating, each MOV disk would have a rating of approximately 3 kV. Thus, Kester does not describe a monolithic MOV disk having a rating of 6 kV. Also, while Kester notes that Kester's invention relates to the coating and “is not limited to any particular type, number or size of electrical components,” this in no way indicates that the coating may be used to prevent cracking of a 6 kV MOV disk in response to a 100 kA impulse.

As explained at p. 4, ll. 5-15 of the application, prior art monolithic disks with a sufficiently high rating (e.g., 6 kV) tended to crack at mid-plane when subjected to the thermo-mechanical forces of a high current impulse, which limited the size of an individual disk in a surge arrester. Others have also recognized relatively long disks (i.e., disks having a relatively high voltage rating) have an increased tendency to crack. See U.S. Patent No. 5,570,264, col. 2, ll. 1-6. One of the inventors' solutions to this problem was to provide a reinforcing structure

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around the monolithic disk, so that disks with higher ratings than used in the prior art could withstand high current impulses without cracking. See Application at p. 11, ll. 3-19; see also p. 5, l. 25 - p. 6, l. 8.

Like Kester, Donnola and Schmidt also fail to describe or suggest the use of a 6 kV MOV disk. Accordingly, reconsideration and withdrawal of the rejection of claim 1 are respectfully requested.

Claims 3, 5-20, 55-65, and 97-98 depend from claim 1 and are allowable for at least this reason.

35 U.S.C. § 103(a) Kester / Schmidt Rejection

Claims 94, 101, and 102 was rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kester in view of Schmidt. Applicant requests reconsideration and withdrawal of this rejection for the reasons discussed above with respect to claim 1.

Enclosed is a check totaling \$146 of which \$36 is for excess claim fees and \$110 is for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050, referencing Attorney Docket 08215-467001.

Respectfully submitted,

Date: _____

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